

Light efficiency:

62 Lumen/Watt

Light quality:

CRI: 35,1

Color temperature:

11720 K

Output: 538 lm

Peak: 197 cd

Power: 8,6 W

PF: 1,0



Product name:

Defiant-0508-RGB-CSF

Item number:

FLNP/L22A0508/RGB/CSF

Date and time:

30.06.2020 12:27:08

Description:

Rank: R2G2B4/RC2GA2BA5/A

Toleranzen:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 K

CRI +/-0,7

Angular Resolution 1 Grad Step

Last Calibration 20.05.2020

Pruefer:

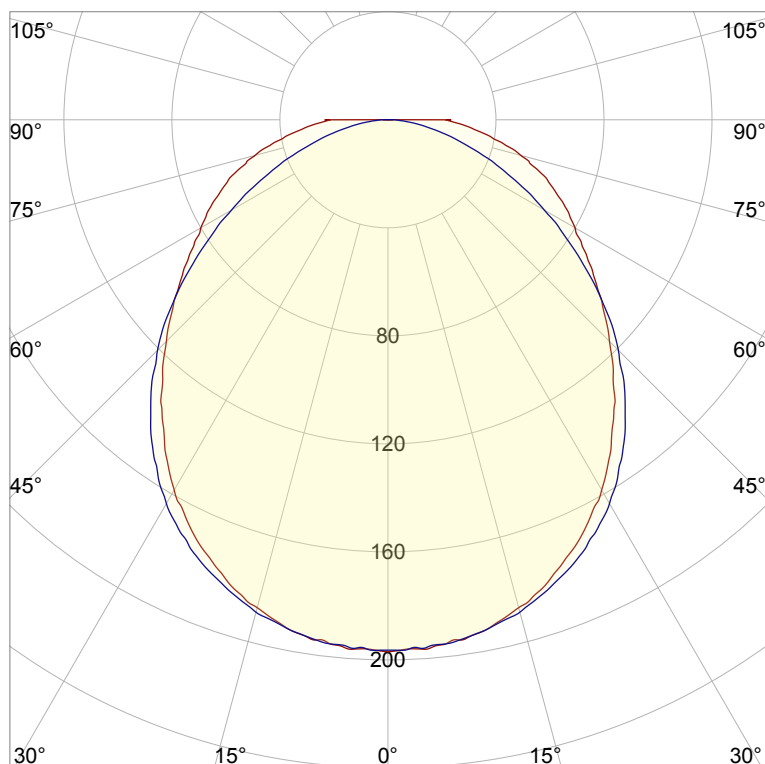
Peter Ulrich

Pruefort:

Lichtlabor

Gaustrasse 13

55411 Bingen am Rhein

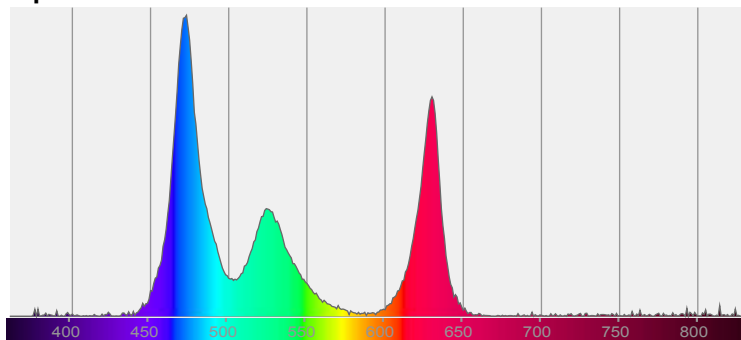


CIE 1931

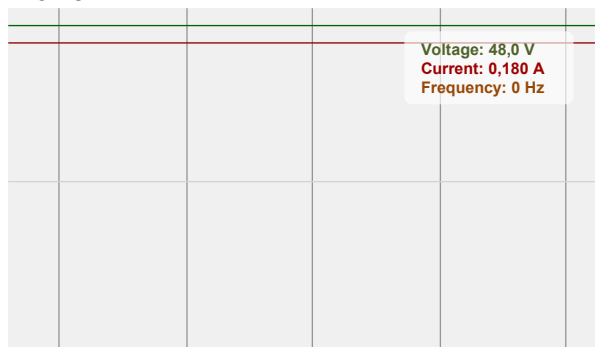
x: 0,268

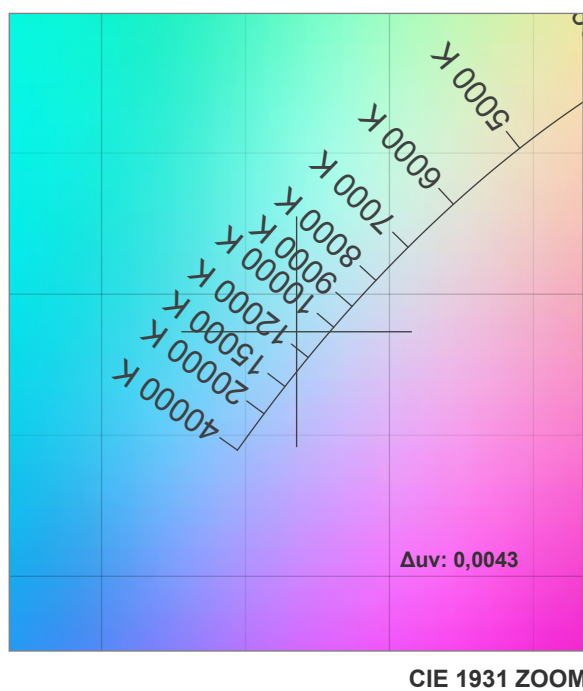
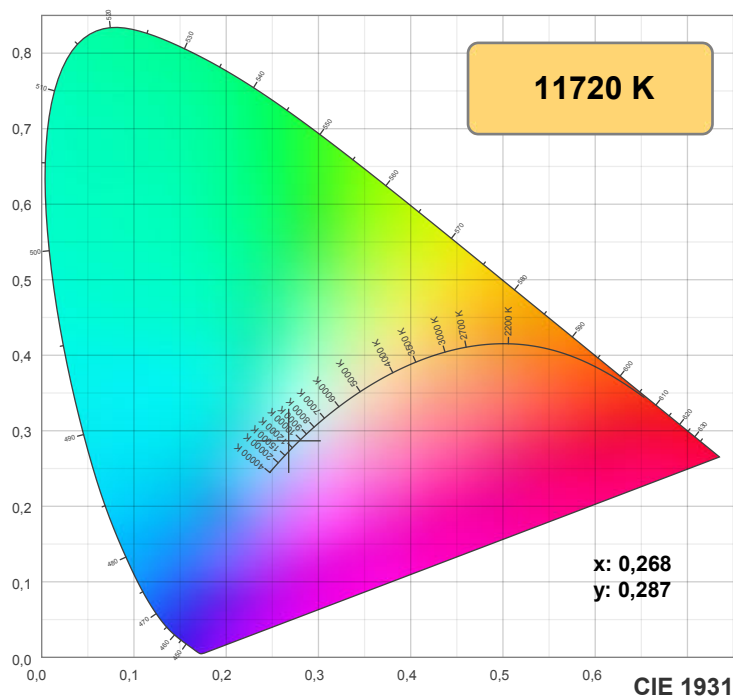
y: 0,287

Spectra



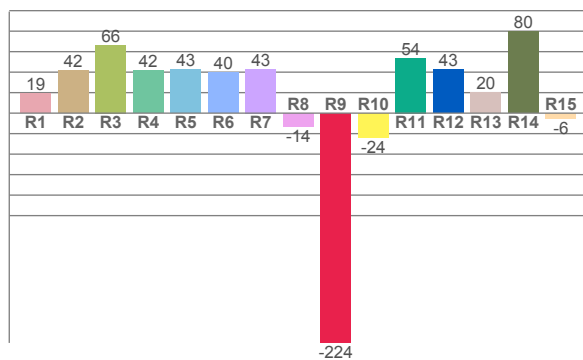
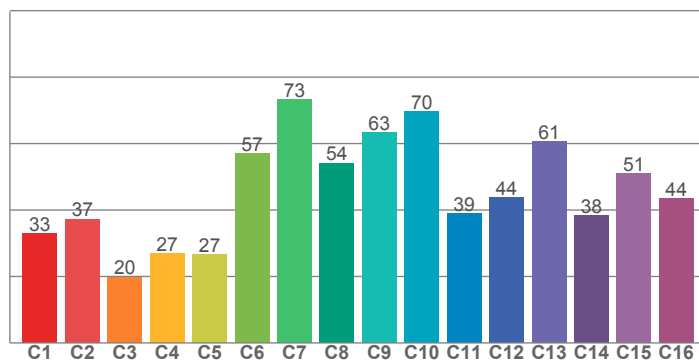
Power





TM30: 44,8

CRI: 35,1 (R1-R8)



CRI R values, only R1-R8 are used to calculate final CRI value

| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|------|------|------|------|------|------|-------|--------|-------|------|------|------|------|------|
| 19,1 | 41,7 | 66,4 | 41,6 | 42,7 | 39,6 | 43,1 | -13,5 | -224,2 | -23,9 | 53,9 | 42,5 | 20,4 | 79,8 | -5,8 |

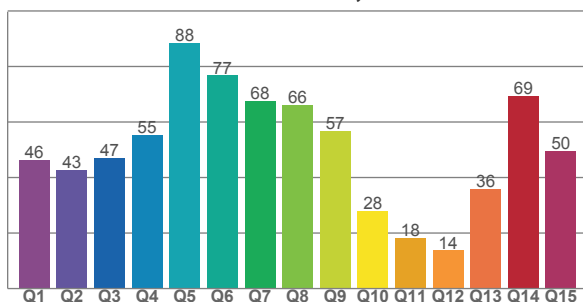
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 32,8 | 37,3 | 19,8 | 26,8 | 26,7 | 57,0 | 73,2 | 54,1 | 63,2 | 69,6 | 39,0 | 43,8 | 60,7 | 38,4 | 51,0 | 43,5 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 46,2 | 42,8 | 47,0 | 55,4 | 88,3 | 76,7 | 67,6 | 66,1 | 56,8 | 27,8 | 18,2 | 13,7 | 35,8 | 69,3 | 49,5 |

CQS: 46,2



Color parameters

| Color temperature | Color rendering index | Red component | Color fidelity | Color gamut | Color quality scale | Color coordinate cie 1931 | Color coordinate cie 1931 | Color coordinate | Color coordinate | Color deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|------------------|------------------|---------------------------------|
| CCT | CRI | CRI R9 | TM30 Rf | TM30 Rg | CQS | x | y | u | v | Δuv |
| 11720 K | 35,1 | -224,2 | 44,8 | 87,7 | 46,2 | 0,268 | 0,287 | 0,181 | 0,291 | 0,0043 |

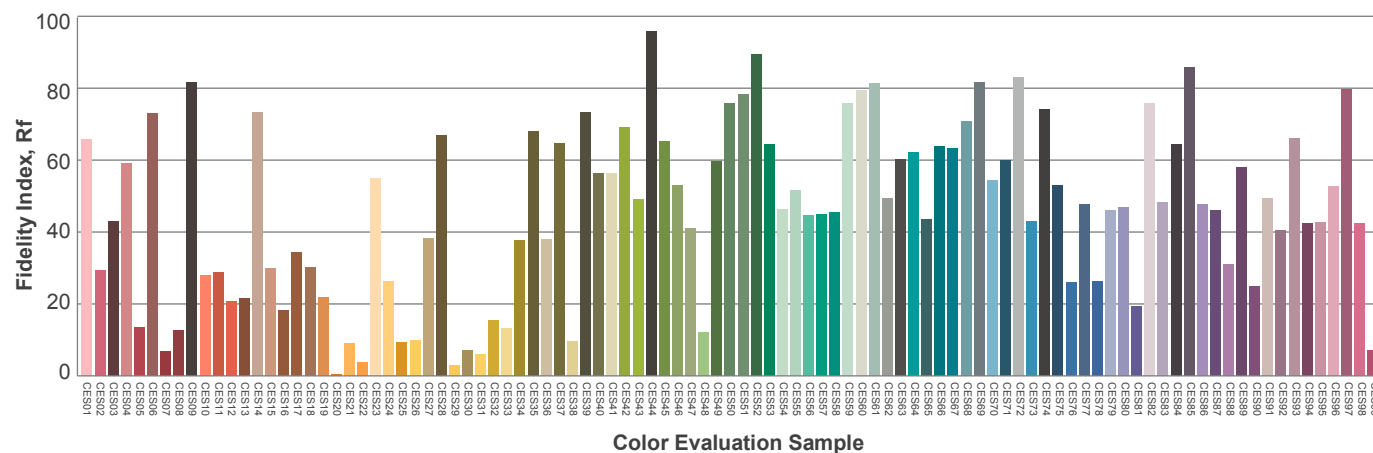
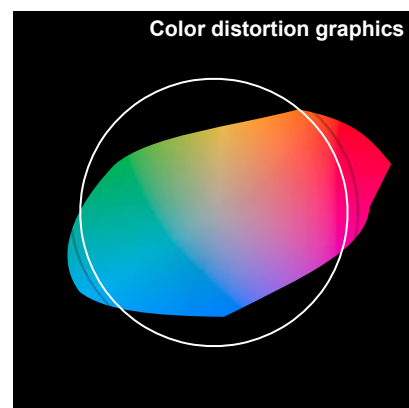
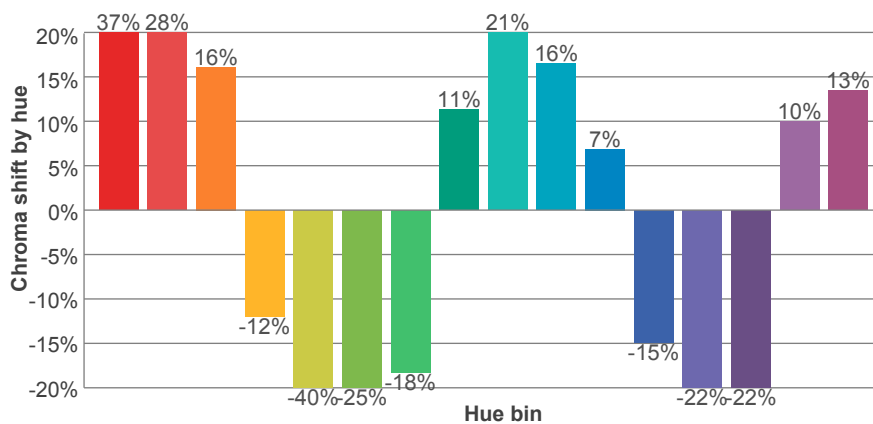
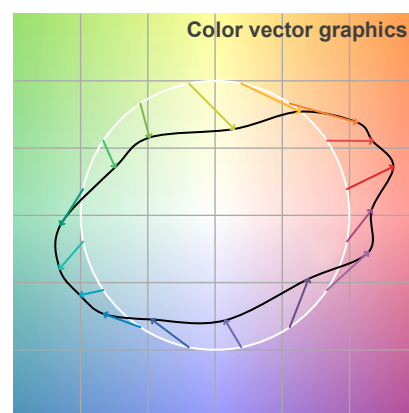
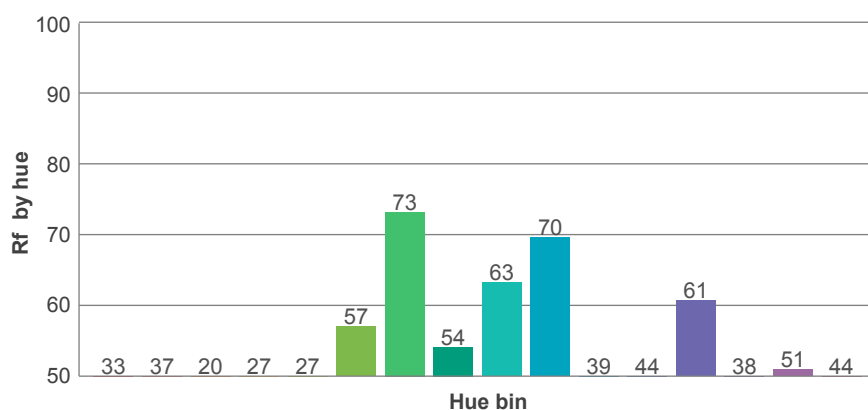
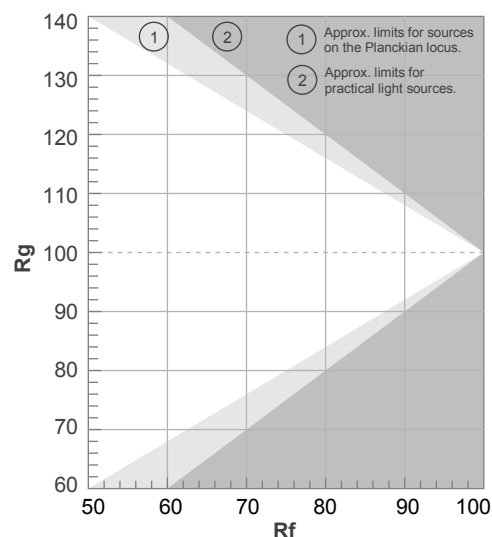
Rf 44,8

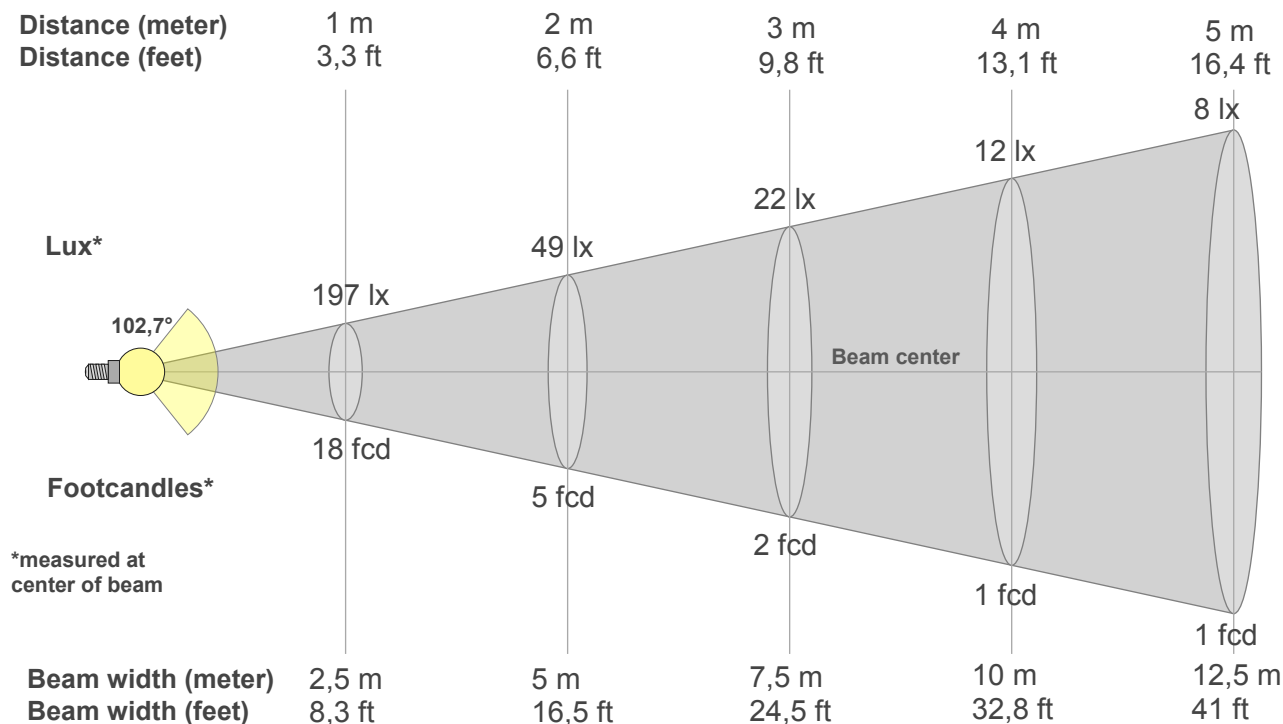
Fidelity index Rf

Rg 87,7

Gamut index Rg

| Hue Bin | R _f | Graphic shifts (%) | |
|---------|----------------|--------------------|------|
| | | Chroma | Hue |
| 1 | 33 | 37% | 10% |
| 2 | 37 | 28% | -19% |
| 3 | 20 | 16% | -49% |
| 4 | 27 | -12% | -47% |
| 5 | 27 | -40% | -26% |
| 6 | 57 | -25% | 8% |
| 7 | 73 | -18% | 12% |
| 8 | 54 | 11% | 29% |
| 9 | 63 | 21% | 16% |
| 10 | 70 | 16% | -6% |
| 11 | 39 | 7% | -28% |
| 12 | 44 | -15% | -31% |
| 13 | 61 | -22% | -8% |
| 14 | 38 | -22% | 32% |
| 15 | 51 | 10% | 41% |
| 16 | 44 | 13% | 27% |





Beam intensities from 1-20m

| 1m | 2m | 3m | 4m | 5m | 6m | 7m | 8m | 9m | 10m | 11m | 12m | 13m | 14m | 15m | 16m | 17m | 18m | 19m | 20m |
|---------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3,3ft | 6,6ft | 9,8ft | 13,1ft | 16,4ft | 19,7ft | 23ft | 26,2ft | 29,5ft | 32,8ft | 36,1ft | 39,4ft | 42,7ft | 45,9ft | 49,2ft | 52,5ft | 55,8ft | 59,1ft | 62,3ft | 65,6ft |
| 197lx | 49lx | 22lx | 12lx | 8lx | 5lx | 4lx | 3lx | 2lx | 2lx | 2lx | 1lx | 1lx | 1lx | 1lx | 1lx | 1lx | 1lx | 1lx | 0lx |
| 18,3fcd | 4,6fcd | 2fcd | 1,1fcd | 0,7fcd | 0,5fcd | 0,4fcd | 0,3fcd | 0,2fcd | 0,2fcd | 0,2fcd | 0,1fcd | 0,1fcd | 0,1fcd | 0,1fcd | 0,1fcd | 0,1fcd | 0,1fcd | 0,1fcd | 0fcd |

Intensities in 0° c-plane

| 0° | 5° | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 197 | 196 | 193 | 187 | 179 | 170 | 158 | 144 | 130 | 116 | 103 | 90 | 80 | 71 | 62 | 51 | 39 | 30 | 11 | 0 |
| 100% | 100% | 98% | 95% | 91% | 86% | 80% | 73% | 66% | 59% | 52% | 46% | 41% | 36% | 32% | 26% | 20% | 15% | 6% | 0% |

Intensities in 90° c-plane

| 0° | 5° | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 197 | 195 | 193 | 189 | 182 | 174 | 164 | 151 | 137 | 121 | 103 | 85 | 67 | 51 | 36 | 24 | 14 | 6 | 1 | 0 |
| 100% | 99% | 98% | 96% | 93% | 89% | 83% | 77% | 69% | 61% | 52% | 43% | 34% | 26% | 18% | 12% | 7% | 3% | 1% | 0% |

Intensities in 180° c-plane

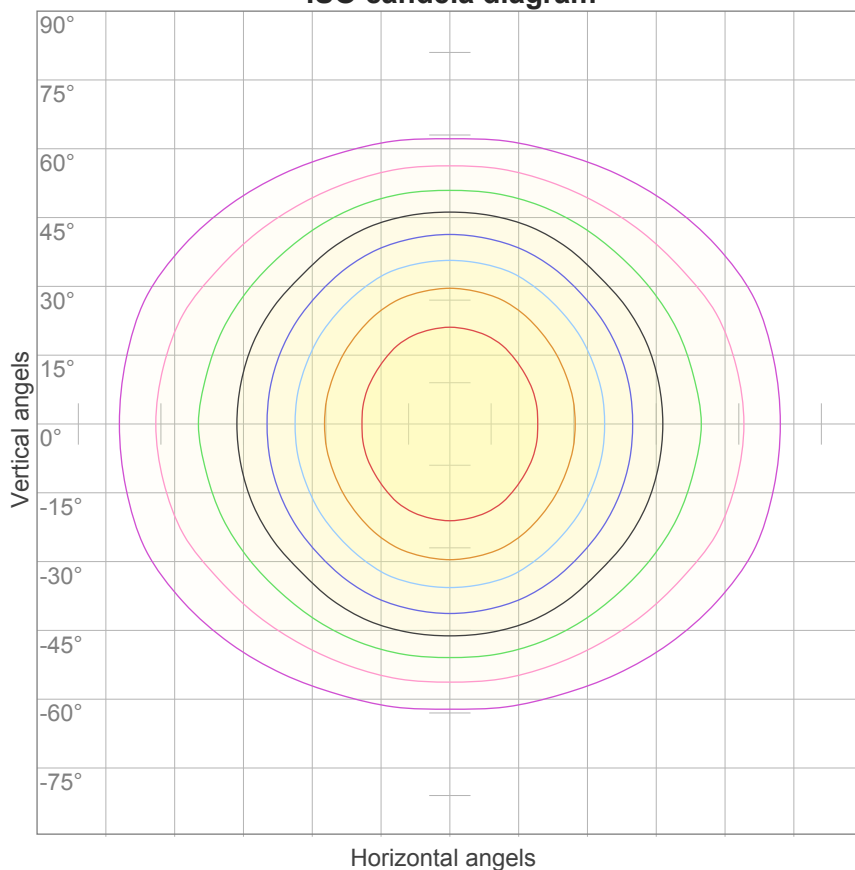
| 0° | 5° | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 197 | 196 | 193 | 187 | 179 | 170 | 158 | 144 | 130 | 116 | 103 | 90 | 80 | 71 | 62 | 51 | 39 | 30 | 11 | 0 |
| 100% | 100% | 98% | 95% | 91% | 86% | 80% | 73% | 66% | 59% | 52% | 46% | 41% | 36% | 32% | 26% | 20% | 15% | 6% | 0% |

Intensities in 270° c-plane

| 0° | 5° | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 197 | 195 | 193 | 189 | 182 | 174 | 164 | 151 | 137 | 121 | 103 | 85 | 67 | 51 | 36 | 24 | 14 | 6 | 1 | 0 |
| 100% | 99% | 98% | 96% | 93% | 89% | 83% | 77% | 69% | 61% | 52% | 43% | 34% | 26% | 18% | 12% | 7% | 3% | 1% | 0% |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 102,7° | 170,8° | 179,1° | 76,7% | 53,9% |

ISO candela diagram



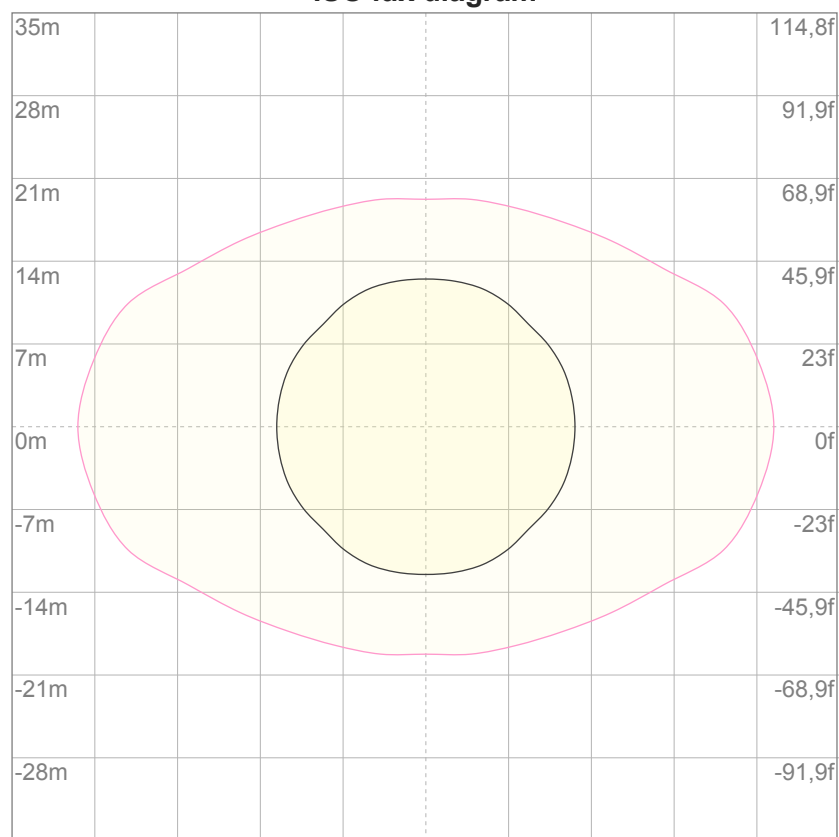
| | |
|-----|--------|
| 10% | 20 cd |
| 20% | 39 cd |
| 30% | 59 cd |
| 40% | 79 cd |
| 50% | 98 cd |
| 60% | 118 cd |
| 70% | 138 cd |
| 80% | 157 cd |
| 90% | 177 cd |

Conditions:

Number of c-planes: 16

Candela at center: 197 cd

ISO lux diagram



| | |
|-----|----------|
| 3% | 59,0m lx |
| 5% | 98,3m lx |
| 10% | 0,197 lx |
| 30% | 0,590 lx |
| 50% | 0,983 lx |

Conditions:

Number of c-planes: 16

Lux at center: 1,97 lx

*Lux distribution on a surface
when lamp is mounted at 10
meters from the surface.*

Glare Evaluation According to UGR

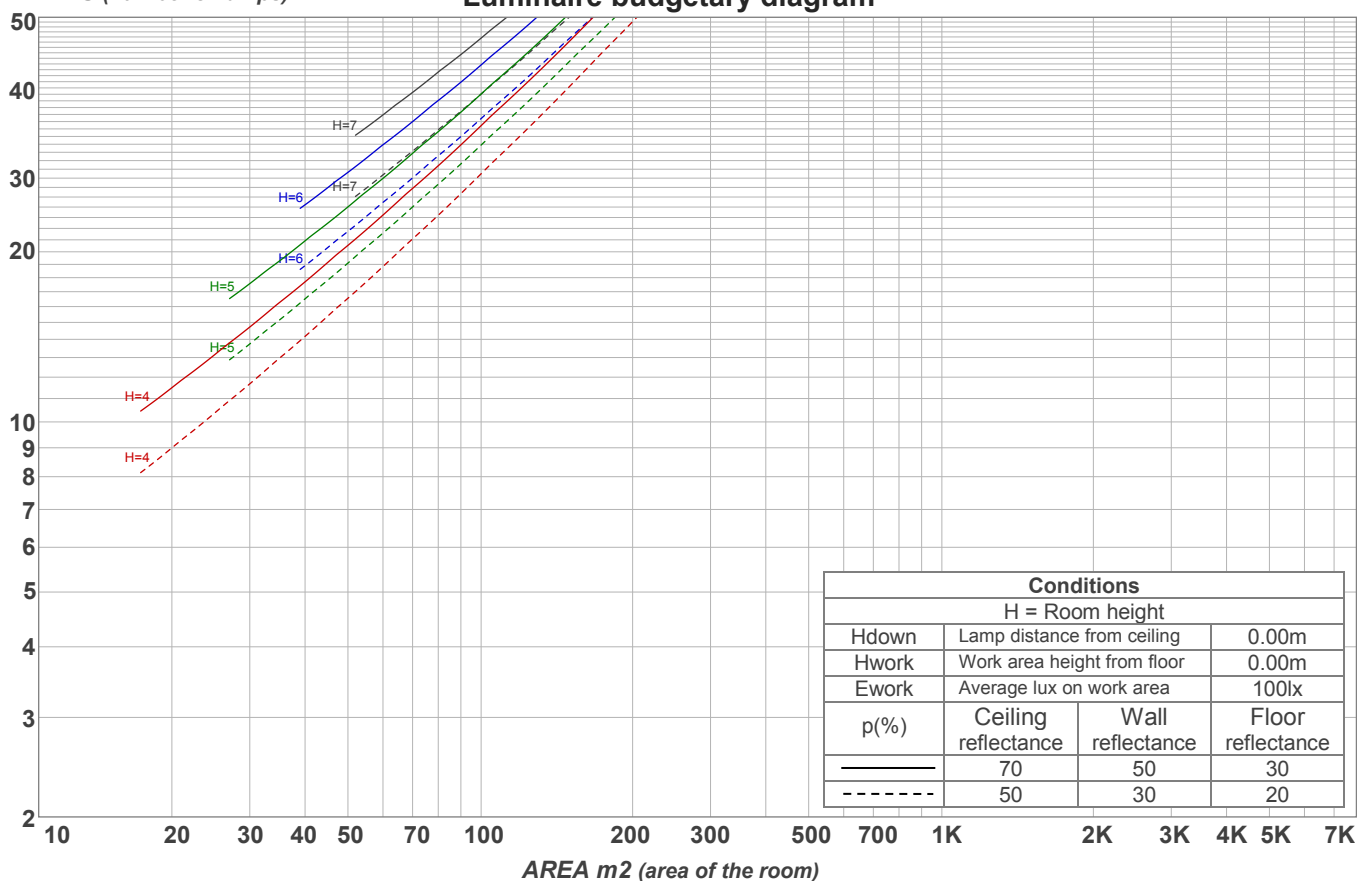
| | | | | | | | | | | | |
|---|-----|---|------|------|------|------|---|------|------|------|------|
| p Ceiling | | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| p Walls | | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| p Floor | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Room size X Y | | Viewing direction at right angles to lamp axis | | | | | Viewing direction parallel to lamp axis | | | | |
| 2H | 2H | 19,9 | 21,2 | 20,2 | 21,5 | 21,7 | 20,5 | 21,7 | 20,7 | 22,0 | 22,2 |
| | 3H | 21,5 | 22,8 | 21,9 | 23,1 | 23,3 | 21,6 | 22,8 | 22,0 | 23,1 | 23,3 |
| | 4H | 22,3 | 23,5 | 22,7 | 23,8 | 24,0 | 22,0 | 23,2 | 22,4 | 23,5 | 23,8 |
| | 6H | 23,0 | 24,1 | 23,3 | 24,3 | 24,7 | 22,4 | 23,5 | 22,7 | 23,7 | 24,1 |
| | 8H | 23,3 | 24,3 | 23,6 | 24,6 | 25,0 | 22,5 | 23,5 | 22,8 | 23,8 | 24,2 |
| | 12H | 23,5 | 24,5 | 23,8 | 24,8 | 25,3 | 22,5 | 23,5 | 22,9 | 23,9 | 24,3 |
| 4H | 2H | 20,5 | 21,7 | 20,9 | 22,0 | 22,2 | 20,9 | 22,1 | 21,3 | 22,4 | 22,6 |
| | 3H | 22,4 | 23,4 | 22,7 | 23,7 | 24,2 | 22,3 | 23,3 | 22,7 | 23,7 | 24,1 |
| | 4H | 23,2 | 24,2 | 23,7 | 24,6 | 25,1 | 22,8 | 23,7 | 23,2 | 24,2 | 24,7 |
| | 6H | 24,0 | 24,9 | 24,5 | 25,3 | 25,7 | 23,2 | 24,1 | 23,7 | 24,5 | 24,9 |
| | 8H | 24,4 | 25,2 | 24,9 | 25,6 | 26,0 | 23,4 | 24,2 | 23,9 | 24,6 | 25,0 |
| | 12H | 24,7 | 25,4 | 25,2 | 25,8 | 26,3 | 23,5 | 24,2 | 24,0 | 24,6 | 25,1 |
| 8H | 4H | 23,5 | 24,3 | 24,0 | 24,7 | 25,1 | 23,1 | 23,9 | 23,6 | 24,3 | 24,7 |
| | 6H | 24,5 | 25,2 | 25,0 | 25,6 | 26,2 | 23,7 | 24,3 | 24,2 | 24,8 | 25,4 |
| | 8H | 25,0 | 25,6 | 25,5 | 26,1 | 26,7 | 24,0 | 24,5 | 24,5 | 25,0 | 25,7 |
| | 12H | 25,5 | 25,9 | 26,0 | 26,4 | 27,1 | 24,1 | 24,6 | 24,7 | 25,1 | 25,7 |
| 12H | 4H | 23,5 | 24,2 | 24,0 | 24,6 | 25,1 | 23,1 | 23,8 | 23,6 | 24,3 | 24,7 |
| | 6H | 24,6 | 25,2 | 25,1 | 25,7 | 26,3 | 23,8 | 24,4 | 24,3 | 24,9 | 25,6 |
| | 8H | 25,1 | 25,6 | 25,7 | 26,1 | 26,7 | 24,1 | 24,6 | 24,7 | 25,1 | 25,7 |
| Variation of the observer position for the luminaire distance S | | | | | | | | | | | |
| S = 1.0H | | 0,1 / -0,1 | | | | | 0,1 / -0,1 | | | | |
| S = 1.5H | | 0,1 / -0,2 | | | | | 0,3 / -0,4 | | | | |
| S = 2.0H | | 0,3 / -0,4 | | | | | 0,7 / -0,8 | | | | |
| Standard table | | n/a | | | | | n/a | | | | |
| Correction summand | | n/a | | | | | n/a | | | | |
| Corrected glare indices referring to 538 lm total luminous flux | | | | | | | | | | | |

Coefficients of Utilization

| Ceiling reflectance | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|---------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Wall reflectance | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| Floor reflectance | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 0 |
| RCR | (RCR: Room Cavity Ratio) Room Values are expressed as percentage of Lumens delivered to the task surface | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 108 | 103 | 98 | 94 | 105 | 100 | 96 | 92 | 96 | 93 | 89 | 92 | 89 | 87 | 88 | 86 | 84 | 82 |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 81 | 75 | 84 | 78 | 74 | 81 | 76 | 72 | 77 | 74 | 70 | 68 |
| 3 | 89 | 79 | 70 | 64 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | 71 | 65 | 61 | 69 | 64 | 60 | 57 |
| 4 | 82 | 70 | 61 | 54 | 80 | 68 | 60 | 54 | 66 | 59 | 53 | 63 | 57 | 52 | 61 | 56 | 51 | 49 |
| 5 | 75 | 62 | 53 | 47 | 73 | 61 | 53 | 46 | 59 | 52 | 46 | 57 | 51 | 45 | 55 | 49 | 45 | 43 |
| 6 | 70 | 56 | 47 | 41 | 68 | 55 | 47 | 41 | 54 | 46 | 40 | 52 | 45 | 40 | 50 | 44 | 40 | 37 |
| 7 | 65 | 51 | 42 | 36 | 63 | 50 | 42 | 36 | 49 | 41 | 36 | 47 | 41 | 35 | 46 | 40 | 35 | 33 |
| 8 | 60 | 47 | 38 | 32 | 59 | 46 | 38 | 32 | 45 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 30 |
| 9 | 56 | 43 | 35 | 29 | 55 | 42 | 35 | 29 | 41 | 34 | 29 | 40 | 34 | 29 | 39 | 33 | 29 | 27 |
| 10 | 53 | 40 | 32 | 27 | 52 | 39 | 32 | 26 | 38 | 31 | 26 | 37 | 31 | 26 | 36 | 30 | 26 | 24 |

LAMPS (number of lamps)

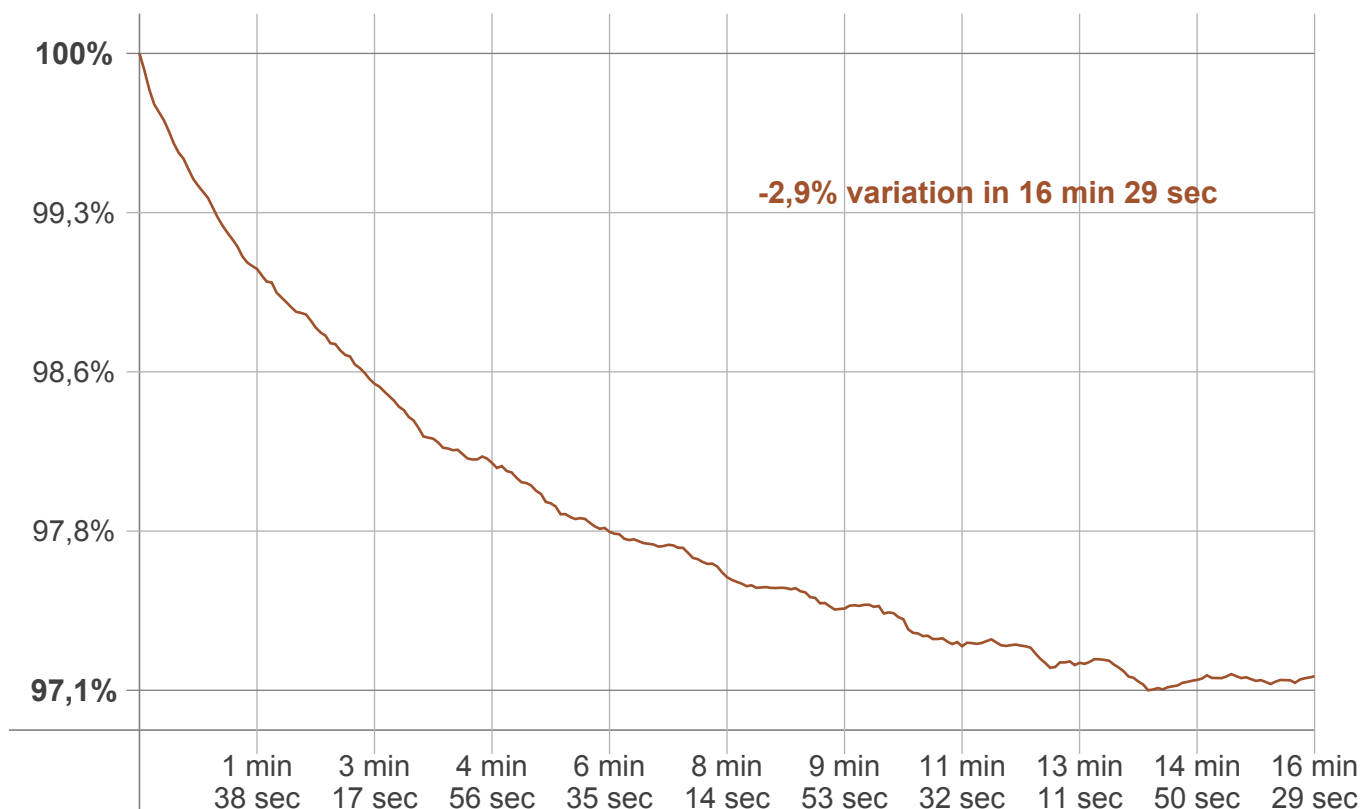
Luminaire budgetary diagram



Zonal Lumen Summary

| 0°-10° | 10°-20° | 20°-30° | 30°-40° | 40°-50° | 50°-60° | 60°-70° | 70°-80° | 80°-90° |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 18,6 lm | 53,0 lm | 79,1 lm | 92,4 lm | 91,2 lm | 78,3 lm | 60,7 lm | 41,3 lm | 23,0 lm |
| 90°-100° | 100°-110° | 110°-120° | 120°-130° | 130°-140° | 140°-150° | 150°-160° | 160°-170° | 170°-180° |
| 0,032 lm | 0,000 lm | 0,000 lm | 0,000 lm | 0,000 lm | 0,000 lm | 0,000 lm | 0,000 lm | 0,000 lm |

Warmup curve



Warmup result

| | |
|------------------|---------------|
| Warmup time: | 16 min 29 sec |
| Warmup variation | -2,9% |

Warmup conditions

| | |
|--------------------|--------|
| Stable period: | 15 min |
| Stable change max: | 2,0% |
| Minimum time: | 15 min |

Color temperature change

| CCT start | CCT change | CCT end |
|-----------|------------|---------|
| 11307 K | +413 K | 11720 K |

Output change

| Output start | Output change | Output end |
|--------------|---------------|------------|
| 552 lm | -14 lm | 538 lm |